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**Improving the Courtesy BMP Exam Process**

**2006 CPM Project**

Darryl Jones  
S.C. Forestry Commission

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STATE DOCUMENTS

In 1994, the SCFC published *South Carolina's Best Management Practices for Forestry* (BMP manual), a set of guidelines for use by forest industry to protect water quality when conducting forest management activities. To encourage the appropriate use of these voluntary guidelines, the agency implemented Courtesy BMP Exams, a proactive technical assistance program to assist foresters, landowners, and loggers. The SCFC has no legislative authority to enforce laws relating to water quality protection, but in 1994, the South Carolina Forest Best Management Practices Act (South Carolina Code of Laws, Section 48-36-10, attachment #1) was passed. The BMP Act stated that:

The State Commission of Forestry is the designated agency in South Carolina to provide public oversight and guidance for technical forest management practices and related activities in laws pertaining to forest lands. To carry out this charge, the commission may enter into contracts and memorandums of understanding with other state or federal agencies. The commission shall establish Best Management Practices, related monitoring programs, and other programs to assure that forestry practices are in compliance with state and federal regulations.

As defined in the BMP manual, a best management practice is "a forest management practice designed to prevent or minimize nonpoint source pollution from forestry". In order to prevent pollution problems rather than identify problems that have already occurred, the emphasis for the agency was placed on early identification of active harvesting sites. Specially-trained BMP Foresters were placed in each administrative region in 1996 to provide consistent, local guidance to the forestry community regarding the potential water quality impacts from forestry operations. In order to become involved in active harvesting operations while they are ongoing, where suggestions can be made to improve compliance with BMPs, sites are located in several different ways:

- **Aerial Detection:** Monthly flights over the major drainages of the State are conducted to locate logging sites while active harvesting is ongoing. Major drainages are targeted because the high water tables, soil types, and plant communities present create conditions where water quality impacts can occur easily when timber is harvested if the appropriate BMPs are not applied.
- **Complaints:** Through a memorandum of understanding with the SC Department of Health & Environmental Control (DHEC), any complaints regarding timber harvests are referred to the SCFC for investigation. In addition to complaint received through DHEC, complaints from the public are also investigated.
- **Voluntary Notification:** While there is no legal requirement to notify the SCFC when timber harvesting occurs, many loggers, landowners, and foresters request a site visit to obtain site-specific recommendations for achieving BMP compliance.
- **Incidental Location:** During the course of normal travel throughout their coverage area, BMP Foresters often observe active timber harvests being conducted and approach the logger to offer BMP recommendations.

Once a potential Courtesy Exam site is located, the landowner is identified through property tax records, and permission to visit the property is obtained via telephone or written communication. If permission to visit the site is obtained, site visits are conducted to:

1. Educate the landowner, forester, and logger concerning appropriate BMP implementation
2. Examine the site and identify potential water quality concerns

3. Provide written recommendations for the completion of the harvest and rehabilitation of the harvested area
4. Document compliance with BMPs on the site

Upon completion of the harvest, the BMP Forester conducts a final site inspection and completes the Courtesy BMP Exam form. This report documents compliance with individual BMPs, categories of BMPs, and with relevant water quality laws.

### **Courtesy Exam Report Distribution**

The monthly Courtesy BMP Exam Summary Report is compiled by the BMP program coordinator by the 15<sup>th</sup> of each month. This report summarizes the field reports completed by the BMP Foresters into a single document, providing stakeholders with information regarding BMP compliance on each harvesting operation where a final site inspection is completed every month ( attachment #2). This report is made available to other agencies, loggers, foresters, and forest industry employees that have requested it in writing. DHEC also receives a copy of the report, and any sites where non-compliance with BMPs was noted is subject to further investigation and enforcement proceedings, at the discretion of the DHEC field investigator. Currently, 87 individuals or companies receive the report each month via email, and an additional 53 receive hard copies via US mail.

### **SCFC Problem: Locating Active Harvesting Operations**

As previously stated, there is no legal requirement for landowners, loggers, or foresters to notify the SCFC or any governmental agency prior to the initiation of a timber harvest.

When considering ways to locate active harvesting operations to visit, there were several factors considered:

- While many states have some form of mandatory notification for timber harvests (Virginia, Maryland, California), landowners in the southeast have typically been opposed to legislation that would require it.
- Foresters must be registered to practice forestry in the State, but registration does not require notification when harvests are conducted.
- Logging companies are typically family-run, small businesses. These companies are typically contractors hired to harvest timber for foresters, timber buyers, or individual landowners. Logging contractors do not have to register with the state, with the exception of business licenses in selected communities.
- The SCFC does not currently have sufficient staff to receive and respond to notification for every timber harvesting operation conducted annually. An estimated 1,500 timber harvesting contractors work in SC, and complete over 15,000 harvesting operations each year.

When the courtesy exam program was initiated, a large faction of forest industry expressed resistance to the idea of on-site inspection by a state agency. Since the practice of forestry is largely unregulated in the State, there were concerns that allowing BMP Foresters to evaluate harvesting operations would inevitably lead to increased restrictions and regulation of forest practices. At the time, very little training was available to loggers

regarding water quality protection, and the logging community in general was suspicious of state involvement in their operation.

### **DHEC vs. SCFC Responsibilities**

DHEC is the primary agency in the State to enforce regulations and laws pertaining to water quality protection, and for protecting the coastal zone while the SCFC is the designated agency to provide oversight and guidance for technical forest management practices. The memorandum of understanding (attachment #3) signed in 1997 between DHEC and the SCFC, clarified each agencies role in protecting water quality, and established a framework for the two agencies to share information about water quality and wetland impacts.

In particular, DHEC agreed to forward complaints regarding timber harvesting operations to the SCFC for investigation through the courtesy exam program, and to follow-up on sites where the SCFC identifies BMP non-compliance that contributes to negative water quality impacts. The SCFC agreed to conduct regular flights over the major drainages of the state, and to identify and report location information regarding sites where possible pollution to the waters of the State were occurring.

### **DHEC Problem: Protecting the Coastal Zone and Interpreting Forestry Issues**

In 1990, the federal Coastal Zone Act Reauthorization Act (CZARA) was passed, compelling DHEC to identify and address sources of point and non-point source pollution within the coastal zone of the State. Within the existing agency structure, DHEC had no

easily implemented method to locate potential pollution sources in the coastal zone, and could not fulfill their obligations under CZARA. In addition, DHEC field staff has little or no understanding of forestry practices or forestry BMPs. Through the memorandum of understanding and the BMP Act, the SCFC became the lead agency for investigating complaints related to forestry activities across the state.

### **Aerial Detection for Harvesting Operations**

In 1996, the SCFC decided that the most effective way to locate active timber harvests across all counties was to initiate a state-wide aerial detection program. While harvests occur periodically on all of the forested areas in the state, there is a higher potential for water quality impacts in areas adjacent to or within the floodplain of the major rivers, streams, and creeks. In order to identify and conduct visits to sites with the most potential for negative impacts, monthly flights were initiated following the major river drainages, and were incorporated into the annual performance evaluation criteria for the BMP Foresters. These regular flights over river basins and the existing MOU helped DHEC fulfill its obligations to identify pollution sources within the coastal zone.

### **Funding for the Courtesy Exam Program**

When the SCFC began designing the courtesy exam program, no funding was available in the existing agency budget for a water quality program. Through the EPA §319 grant program, administered by DHEC, an annual grant was secured to fund pollution prevention activities, pursuant to the memorandum of understanding between the two agencies. This grant provided funding for regular flights over the coastal zone, reporting

between the two agencies regarding their prospective areas of expertise and responsibility, and enabled the SCFC to be proactive in identifying harvesting sites with a high potential for creating water quality impacts. These grant funds cover 50% of the salaries for the BMP program and all of the operating expenses, including travel, aerial survey flights, training, and equipment. Since 1996, the SCFC has received annual grants from DHEC to fund the operating expenses of the BMP program.

### **How are Courtesy Exam Sites Really Located?**

During the initial implementation of the courtesy exam program in 1996, the SCFC had to initiate contact with each individual landowner, logger, or forester conducting a harvesting operation. Many loggers, foresters, and forest landowners were reluctant to allow the SCFC to conduct examinations of their harvesting operations, and did not fully understand the role of the SCFC. As the program matured and the forestry community became educated about the goals of the program (i.e. prevention of problems rather than enforcement or regulation), many forestry operators began requesting site visits from a BMP forester. To determine what method is most effective at locating active harvesting operations, data from the period of November 2002 through July 2005 was examined.

During this period, 1,201 courtesy exam site inspections were completed. As illustrated in attachment #4, only 15% of the courtesy exams completed during this period were located through aerial observation. In contrast, 79% of the exams in this time period were located through a combination of voluntary notifications (43%) and incidental means (36%).



### **Where are harvesting sites being located?**

One important reason for utilizing aerial detection to locate courtesy exam sites is the ease with which sites in sensitive areas, such as bottomland hardwood areas, swamps, and other wetlands can be located. Another reason is to enable the BMP Forester to locate sites across all types of ownership categories and political/municipal boundaries. Each of the four BMP Foresters is responsible for multiple counties (attachment #5). Counties were partitioned into BMP coverage areas based upon data from the 1999 timber product output survey, conducted and compiled by the Forest Management Section of the SCFC. This report utilizes data from an annual survey of facilities within SC that purchase raw forest products. Each wood-consuming facility reports the volume of standing timber utilized annually from each county. The percentage of wood harvested in each county is computed using this data (insert reference for TPO survey), and counties of responsibility are designated for each BMP Forester, so that each forester is responsible for a coverage area that supplies an equal amount of raw forest products.

Data from September 1997-July 2005 was analyzed and the number of courtesy exam sites completed in each county was computed. The results from this query are presented in attachment #6. Distribution of courtesy exam sites does not directly correlate with the TPO data in the majority of counties, for several likely reasons:

- Office locations for BMP Foresters
- Travel distances
- Location of many harvesting sites in areas not covered by the current aerial location strategy

## **Examining the Process**

After creating a flow chart of the existing courtesy exam procedure (attachment #7), the BMP Foresters were asked to provide suggestions for improving the process, in particular for streamlining the process for locating active harvesting sites. During a staff meeting, the existing process was examined in detail. Suggestions were also solicited from forest industry representatives. The following suggestions were put forward:

- Reduce the amount of time spent conducting routine flights to locate active harvesting operations. Most courtesy BMP exam sites are currently located through other methods.
- Utilize county foresters and/or forest technicians to conduct tax record searches to identify landowners and to obtain permission to conduct site visits. BMP Foresters could spend their time more effectively by working with loggers and providing site specific BMP recommendations.
- Create an internal method for county-level SCFC personnel to notify BMP Foresters when timber harvesting operations are identified in their area of responsibility.
- Train SCFC and contract pilots to collect location information for active harvesting operations located during routine flights for forest fire detection. SCFC and contract pilots fly grid patterns across the state when forest fire danger is moderate to high. Training the pilots to obtain GPS location data for active, ongoing harvesting operations could be done easily.

As described above, some level of regular flights over the coastal zone are required to fulfill the SCFC obligation under the existing memorandum of understanding with DHEC. Aerial observation is a practical way to locate sites with a high potential to cause water quality problems, but has become a less important method since educational efforts have increased within the logging community.

### **Improving the Process**

Based on data from the last several years and input received from the BMP Foresters and forest industry, I would suggest the following changes to improve the courtesy exam process:

1. Reduce the amount of time spent by BMP Foresters conducting routine flights to locate active harvesting operations. Since only a small percentage of the total number of sites are located via aerial observation, less frequent flights could be utilized to locate some harvesting sites in critical locations while still allowing the BMP Foresters to identify potential problems for investigation by DHEC under the existing memorandum of understanding. The money and time saved that has previously been spent arranging for monthly flights, flight time, and follow-up (obtaining landowner information through tax records) could be spent working one-on-one with individual loggers.
2. Integrate other SCFC personnel into the courtesy exam process, and utilize them to assist with identification of landowners through tax records. A procedure

should be created to allow other SCFC employees to easily notify the BMP Forester when active harvesting operations are identified with their county.

3. Conduct training for SCFC and contract pilots to acquire GPS location data for any active harvesting operations noted during routine flights for fire control and detection. Improve communication with the BMP Foresters to create an easy way to transfer information about harvesting sites on a regular basis.
4. Conduct semi-annual reviews of courtesy exam data to ensure that each county is adequately covered and that enough BMP exams are conducted to reflect the amount of wood harvested from each county.

The existing courtesy exam program is very widely respected, and these minor adjustments should improve program efficiency. Feedback should be solicited from a larger segment of the customers that participate in the program- the forest landowners, loggers, and forest industry to determine if larger-scale changes should be implemented.

## CHAPTER 36.

### SOUTH CAROLINA FOREST BEST MANAGEMENT PRACTICES ACT

#### **SECTION 48-36-10.** Short title.

This chapter may be cited as the “South Carolina Forest Best Management Practices Act”.

#### **SECTION 48-36-20.** Definitions.

For the purposes of this chapter:

- (1) “Silvicultural activity” means multiple-use forest management activity including, but not limited to, the harvesting of timber, construction of roads and trails for forest management purposes, and preparation of property for reforestation.
- (2) “Best Management Practices” means a set of guidelines for silvicultural activities to protect water quality, air quality, soil quality and productivity, wildlife habitat, and the aesthetic integrity of the forest.

#### **SECTION 48-36-30.** Designated agency; duties.

The State Commission of Forestry is the designated agency in South Carolina to provide public oversight and guidance for technical forest management practices and related activities in laws pertaining to forest lands. To carry out this charge, the commission may enter into contracts and memorandums of understanding with other state or federal agencies. The commission shall establish Best Management Practices, related monitoring programs, and other programs to assure that forestry practices are in compliance with state and federal regulations.

Attachment #1: South Carolina Best Management Practices Act.

## Courtesy Exam Log for July 2005

South Carolina Forestry Commission

Site Identification Number	County	Landowner Category	Forestry Operator	Road Systems	SMEs	Stream Crossings	Harvesting Systems	Site Preparation	Buffer Drainage	Has Non-Compliance w/ BMPs Resulted in In-Stream Impacts?
Coastal 836	Dorchester	NIPF, <1000	T&D Logging	N/A	Accept.	N/A	Accept.	N/A	N/A	No
Coastal 837	Orangeburg	NIPF, <1000	R&R Thinning	N/A	Accept.	N/A	Accept.	N/A	N/A	No
Coastal 838	Jasper	NIPF, <1000	Shaw Logging	N/A	N/A	N/A	Accept.	N/A	N/A	No
Coastal 839	Bamberg	NIPF, <1000	V. Walls F.P.	N/A	Accept.	N/A	Accept.	N/A	N/A	No
Coastal 840	Bamberg	NIPF, <1000	Streamline Logging	N/A	Accept.	Accept.	Accept.	N/A	N/A	No
Coastal 841	Berkeley	NIPF, <1000	Brown & Sons	N/A	N/A	Accept.	Accept.	N/A	N/A	No
Coastal 842	Orangeburg	Industry	R. Williams	N/A	N/A	N/A	Accept.	N/A	N/A	No
Coastal 843	Colleton	NIPF, <1000	Seckinger F.P.	N/A	N/A	N/A	Accept.	N/A	N/A	No
Coastal 844	Hampton	NIPF, <1000	Three-Gen	N/A	Accept.	Accept.	Accept.	N/A	N/A	No
Coastal 845	Charleston	NIPF, <1000	Rhoads Excavating	Accept.	N/A	N/A	N/A	N/A	N/A	No
Pee Dee 1228	Georgetown	NIPF, >1000	J.C. Witherspoon, Jr. Inc.	Accept.	Accept.	Accept.	Accept.	N/A	N/A	No
Pee Dee 1432	Williamsburg	NIPF, >1000	J.C. Witherspoon, Jr. Inc.	N/A	Accept.	N/A	Accept.	N/A	N/A	No
Pee Dee 1517	Horry	NIPF, <1000	Hugo Logging	N/A	Accept.	N/A	Accept.	N/A	N/A	No
Pee Dee 1521	Darlington	NIPF, >1000	Savgrass Timber & Chip, LLC	N/A	Accept.	N/A	Accept.	N/A	N/A	No
Pee Dee 1526	Horry	Public	Tracy's Logging	N/A	N/A	N/A	Accept.	N/A	N/A	No
Pee Dee 1547	Horry	Industry	Carter Timber Co.	N/A	N/A	N/A	Accept.	N/A	N/A	No
Pee Dee 1549	Georgetown	NIPF, >1000	Southern Wood Products	N/A	N/A	N/A	Accept.	N/A	N/A	No
Pee Dee 1550	Georgetown	NIPF, >1000	Southern Wood Products	N/A	Accept.	N/A	Accept.	N/A	N/A	No
Pee Dee 1551	Williamsburg	NIPF, >1000	TAC Logging	N/A	Accept.	N/A	Accept.	N/A	N/A	No
Pee Dee 1554	Georgetown	NIPF, <1000	Cedar Creek Timber	N/A	Accept.	N/A	Accept.	N/A	N/A	No
Pee Dee 1583	Clarendon	Industry	Wood Logging	N/A	Accept.	N/A	Accept.	N/A	N/A	No
Pee Dee 1589	Marlboro	Industry	Ward's Logging	N/A	N/A	N/A	Accept.	N/A	N/A	No
Midlands 313	Richland	NIPF, >1000	D&H Logging	N/A	Accept.	N/A	Accept.	N/A	N/A	No
Midlands 314	Richland	NIPF, >1000	Johnson & Leslie Const.	Accept.	N/A	Accept.	N/A	N/A	N/A	No
Midlands 315	Newberry	NIPF, <1000	Jeremy's Timber	N/A	Accept.	N/A	N/A	Accept.	N/A	No
Midlands 316	Aiken	Industry	Mt Bethel Logging/Randall	N/A	Accept.	N/A	Accept.	N/A	N/A	No
Midlands 317	Edgefield	NIPF, <1000	Log Creek	Accept.	Accept.	N/A	Accept.	N/A	N/A	No
Midlands 318	Fairfield	NIPF, <1000	J C Doolittle	Accept.	Accept.	Accept.	Accept.	N/A	N/A	No
Midlands 319	Fairfield	NIPF, >1000	J C Doolittle	Accept.	Accept.	Accept.	Accept.	N/A	N/A	No
Piedmont 741	McCormick	Industry	Miller Logging	N/A	Accept.	N/A	Accept.	N/A	N/A	No
Piedmont 742	Pickens	NIPF, <1000	B&D Logging, Inc.	Accept.	Accept.	N/A	Accept.	N/A	N/A	No
Piedmont 743	Abbeville	NIPF, >1000	Log Creek Timber Company	N/A	Accept.	N/A	Accept.	N/A	N/A	No
Piedmont 744	Pickens	NIPF, <1000	H&R Timber, Inc.	N/A	N/A	N/A	Accept.	N/A	N/A	No
Piedmont 745	McCormick	NIPF, >1000	JPW Logging	N/A	Accept.	N/A	Accept.	N/A	N/A	No

## MEMORANDUM OF UNDERSTANDING

between the

**South Carolina Department of  
Health & Environmental Control**

and the

**South Carolina  
Forestry Commission**

The agreement is made and entered into the first day of July 1997, by and between the S. C. Department of Health & Environmental Control (hereinafter referred to as SCDHEC) and the S. C. Forestry Commission (hereinafter referred to as the SCFC).

### WHEREAS:

1. The SCDHEC has the responsibility under the Pollution Control Act (48-1-10 et seq., S. C. Code of Laws, 1976) to provide for public health and environmental protection by administration of a system to protect water quality.
2. The SCDHEC is responsible for developing and implementing the State of South Carolina Nonpoint Source Management Program pursuant to the Federal Clean Water Act (PL 100-4), Section 319 and the Coastal Zone Act Reauthorization Act, Section 6217. The program provides for the attainment of water quality objectives and for protection of beneficial uses of water through nonpoint source (NPS) control measures.
3. The SCFC is identified in South Carolina's Nonpoint Source Management Plan, prepared by SCDHEC, as the lead agency for the development and interpretation of forestry Best Management Practices (BMP) and is integral in the implementation of the forestry section of the NPS management plan.
4. The SCFC has the responsibility under the South Carolina Forest Best Management Practices Act (48-36-30 et seq., S. C. Code of Laws, 1976 as amended) to serve as the designated agency in S. C. to provide public oversight and guidance for technical forest management practices and related activities in laws pertaining to forestlands.

**NOW, THEREFORE**, in consideration of the mutual benefits to each party hereto in promoting the Nonpoint Source Management Program for South Carolina pursuant to Section 319 of the Federal Clean Water Act and Section 6217 of the Coastal Zone Act Reauthorization Amendments, the parties agree as follows:

1. The SCFC shall serve as a clearinghouse for citizen concerns, suggestions, and complaints for forestry-related activities on forestland.
2. The SCFC shall locate specially-trained BMP Foresters in each of the SCFC's three regional offices to serve as local coordinators of the forestry BMP program.
3. The SCFC shall develop and revise forestry BMPs as needed, based on monitoring results, new research, and changes in state and federal laws.

4. The SCFC shall develop and present educational programs dealing with silvicultural nonpoint source pollution problems and the implementation of forestry BMPs to address those problems.
5. The SCFC shall develop and implement a statewide forestry BMP implementation monitoring program to accurately track compliance with state BMPs over time. A summary report of the BMP implementation monitoring results shall be published at the end of periodic surveys.
6. The SCFC shall implement a forestry BMP courtesy exam program that will focus on a proactive approach to preventing NPS pollution through the offer of courtesy exams by specially-trained BMP Foresters. Ongoing forestry activities shall be located by routinely flying the major drainages in the state.
7. The SCFC shall provide the SCDHEC with information concerning forestry-related activities, identified through the courtesy exam program, if the involved landowner/forestry operator has BMP deficiencies that have caused significant in-stream water quality violations.
8. The SCDHEC shall notify the SCFC of any circumstances where forestry activities are being conducted in a manner which may cause violations of State water quality standards so the SCFC may work with the landowner/forestry operator to prevent or correct these violations.
9. Nothing herein shall be construed in any way as limiting the authority of either state agency in carrying out their legal responsibilities for management or regulation of water quality.
10. Each and every provision of the Memorandum of Understanding is subject to the laws and regulations of the State of South Carolina and the United States.

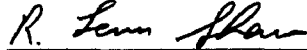
**THIS MEMORANDUM OF UNDERSTANDING** is entered into for the purpose of coordinating implementation of the forestry component of the State's nonpoint source management plan and for ensuring that appropriate BMPs which minimize adverse effects on the State's waters are in place.

**THE UNDERSIGNED** accept and agree to implement the responsibilities detailed in this Memorandum of Understanding.

This agreement will become effective on the date below and shall remain in effect until terminated. It may be revised or modified at any time by mutual agreement of the parties hereto. This agreement may be terminated by either party upon 60 days written notice to the other party.

In witness whereof, the parties, hereto, have executed this agreement on this first day of July 1997.

**For the South Carolina Department of  
Health & Environmental Control**



R. Lewis Shaw  
Deputy Commissioner  
Environmental Quality Control

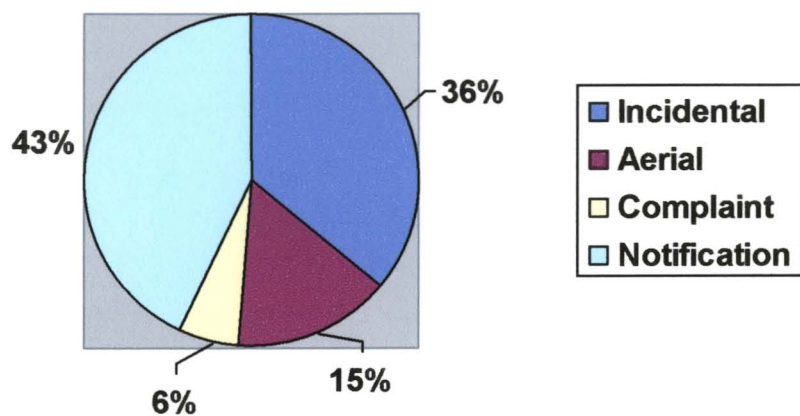
**For the South Carolina  
Forestry Commission**



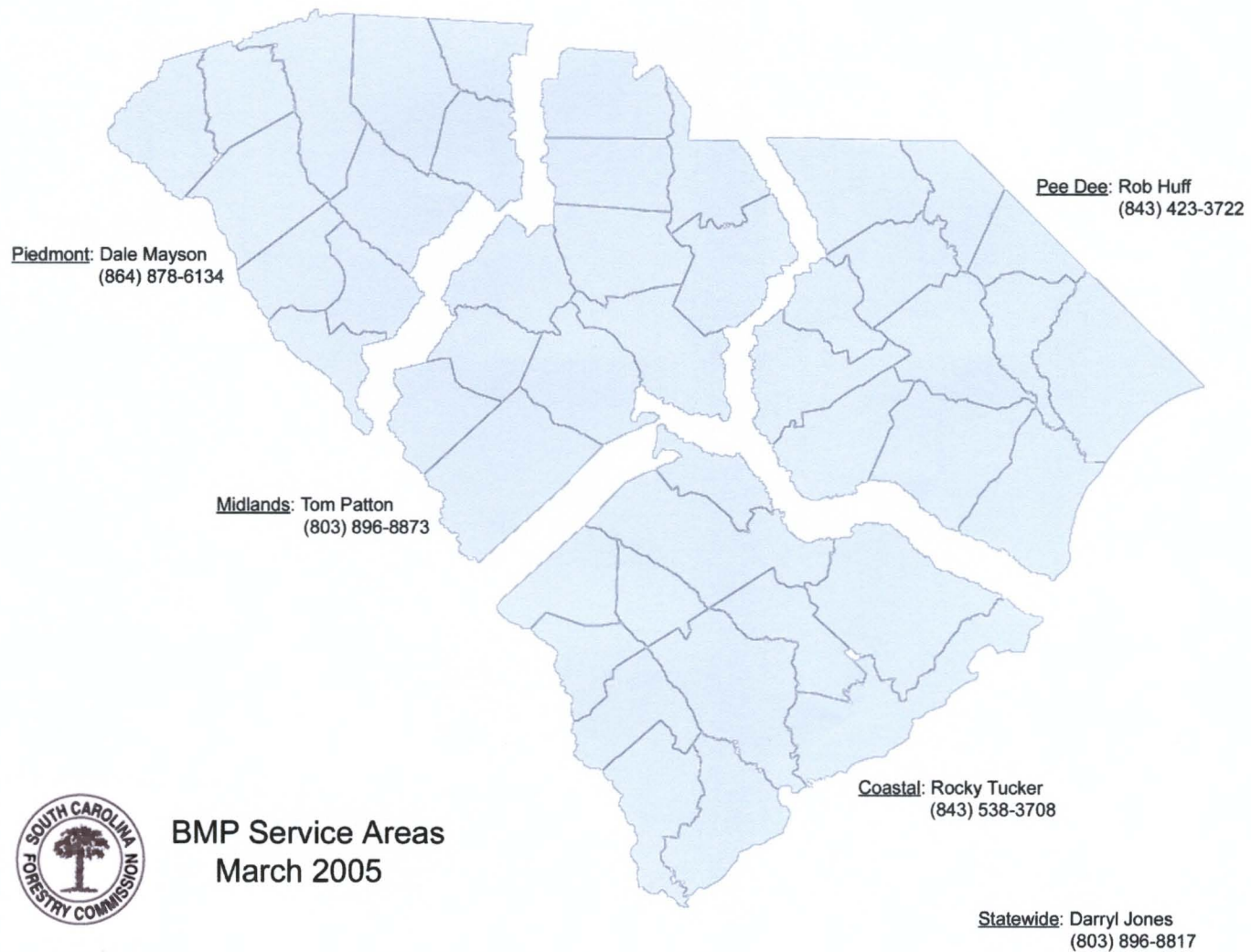
Hugh Ryan  
State Forester

**Attachment #3:** Memorandum of Understanding between SCDHEC and the SCFC, 1997.

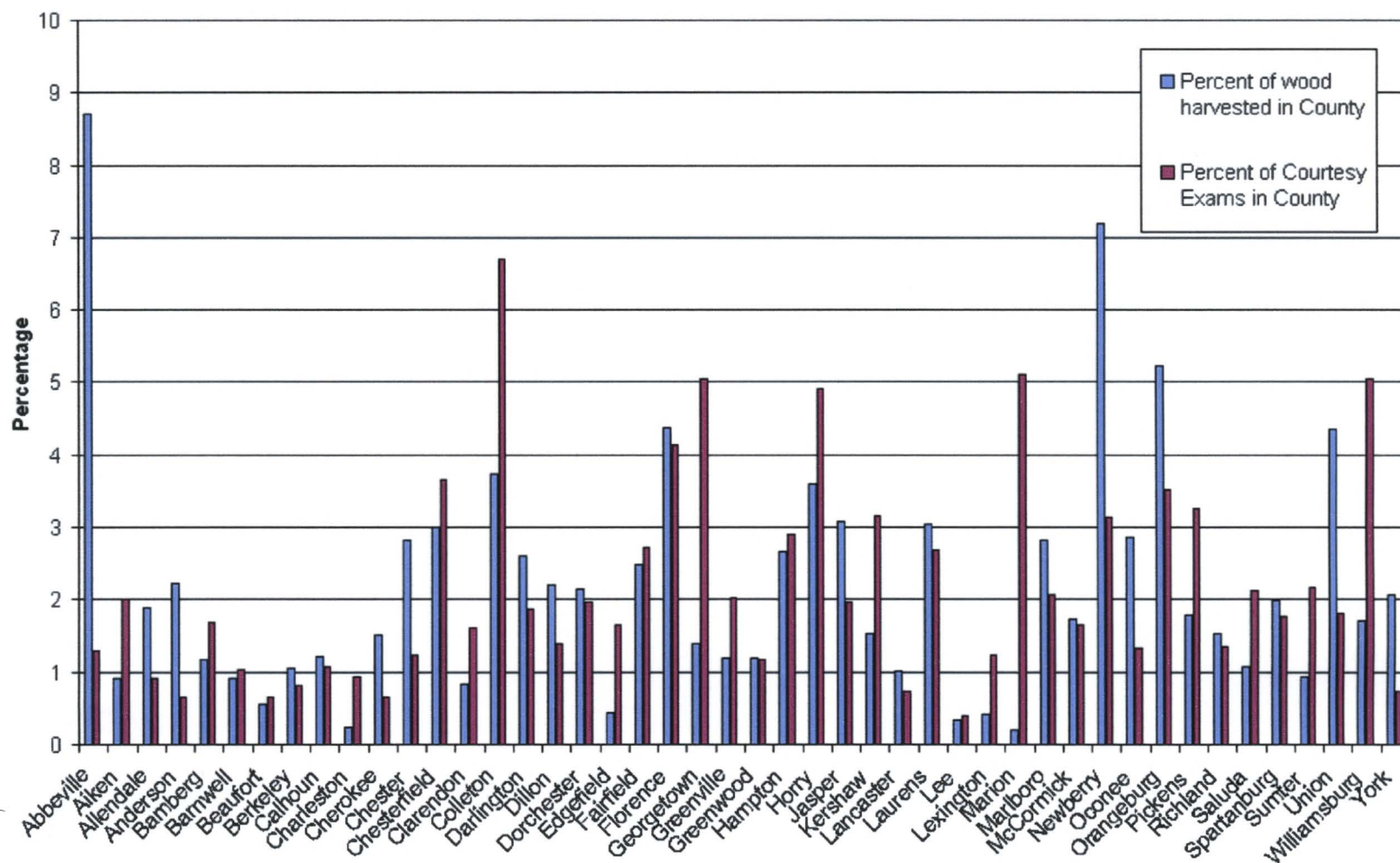


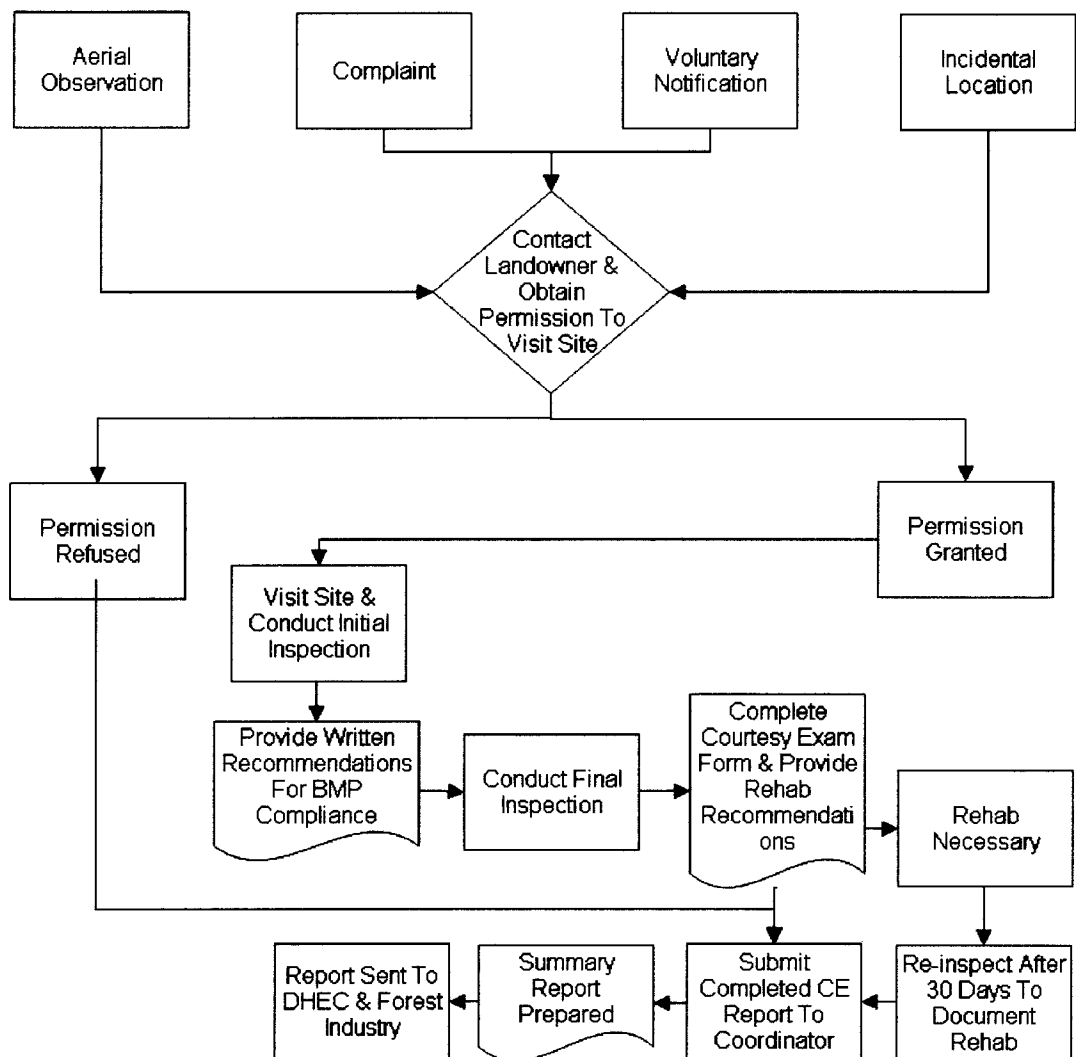


Attachment #4: Method of location for courtesy exams, November 2002- July 2005.



Comparison of Courtesy Exams Completed & Timber Product Output Data, By County





Attachment #7: Flow chart of the courtesy exam process.

## **Appendix A: Glossary of Terms**

**BMP, Best Management Practice:** A forest management practice designed to minimize or prevent non-point source pollution when silvicultural activities are conducted.

**CZARA:** The Coastal Zone Act and Reauthorization Amendments of 1990, a federal act passed in 1990 that mandated that states with a coastal zone develop coastal nonpoint pollution control programs that identify how each state will identify and address nonpoint source pollution.

**Industry land:** Forested land owned by paper companies, timber management investment organizations, where the primary purpose of the land is to provide raw forest products for harvest and utilization in company facilities.

**MOU, Memorandum of Understanding:** A written agreement between two distinct agencies that clarifies their respective roles and responsibilities.

**NIPF, >1000:** A non-industrial private forest landowner that owns more than 1,000 acres of forested land.

**NIPF, <1000:** A non-industrial private forest landowner that owns less than 1,000 acres of forested land.

**Nonpoint source pollution:** Pollution, in the form of sediment, toxins, or suspended matter, carried into streams from runoff from indefinite sources.

**Public land:** Forested land owned, leased, or managed by a county, state, or federal agency.

**Silviculture:** The application of scientific forest management, including timber harvesting, site preparation, reforestation, and timber stand improvement.

## **Appendix B: References**

Johnson, Tony G.; Harper, Richard A.; Bozzo, Michael J., 2001. South Carolina's timber industry - an assessment of timber product output and use, 2001. Resource Bulletin SRS-89. Asheville, NC: U.S. Department of Agriculture, Forest Service, Southern Research Station. 33 p.

South Carolina Forestry Commission, 1994. South Carolina's Best Management Practices for Forestry, 64 p.